Rare case of left ventricular mesenchymal hamartoma

Lulu Liu, MD, Chaoyi Qin, MD, and Yingqiang Guo, MD

From the Department of Cardiovascular Surgery, West China Hospital, Sichuan University, Chengdu, Sichuan, People's Republic of China.

This study is supported, in part, by grant no. 81200144 from the National Research Foundation of Nature Science, People's Republic of China.

L.L. and C.Q. contributed equally to this article.

Disclosures: Authors have nothing to disclose with regard to commercial support.

Received for publication Feb 11, 2017; revisions received Aug 14, 2017; accepted for publication Sept 9, 2017; available ahead of print Nov 2, 2017.

Address for reprints: Yingqiang Guo, MD, Department of Cardiovascular Surgery, West China Hospital, Chengdu, Sichuan, People's Republic of China, 610041 (E-mail: guoyingqianghuaxi@163.com).

J Thorac Cardiovasc Surg 2018;155:346-50

0022-5223/\$36.00

Copyright © 2017 by The American Association for Thoracic Surgery

<https://doi.org/10.1016/j.jtcvs.2017.09.051>

Perioperative evaluations by echocardiography of the tumor.

Central Message

We report a 64-year-old man with recurrent episode of dyspnea. A cardiac tumor was discovered. Pathological analysis and immunohistochemical staining confirm that the tumor was a mesenchymal tumor.

See Editorial Commentary page 351.

▶ Video clip is available online.

Written, informed consent was obtained from the patient for the publication of this report and any accompanying images, and this report was approved by the hospital ethics committee. A 64-year-old man presented with recurrent episodes of dyspnea. The findings of a transthoracic echocardiogram revealed an intracardiac mass located in the muscular of interventricular septum (IVS) just beneath the left ventricular outflow tract (LVOT), leading to acceleration of blood flow in LVOT.

Magnetic resonance imaging depicted a large (2 × 3 cm) oval, pedunculated mass that originated from the muscular IVS, which was located just beneath the LVOT and had long T1 and T2 signals (Figure 1, A and B). Gadolinium contrast enhancement imaging revealed no early or late enhancement. The patient underwent surgical intervention via cardiopulmonary bypass.

Intraoperative transesophageal echocardiography further confirmed a mass with broad insertion at the level of the muscular segment of the IVS (Figure 2, A-C; Videos 1-3). Through an aortic root incision, the tumor was exposed and resected completely (Figure 3, A-C). No infiltration into the IVS was noted.

After removal of the tumor, transesophageal echocardiography showed no residual tumor and no aortic insufficiency (Figure 2, D; Video 4). Pathologic analysis revealed that the tumor had a mesenchymal origin suggestive of a cardiac mesenchymal hamartoma¹ (Figure 4, A). Further immunohistochemical staining showed SMA (+) (Figure 4, B), H-caldesmon (+), Bcl-2 (+), MSA (+)

FIGURE 1. Magnetic resonance images show a large oval pedunculated mass originated from muscular IVS with (A) long T1 and (B) long T2 signal.

FIGURE 2. Intraoperative transesophageal echocardiography shows a mass with broad insertion at the level of the muscular portion of the IVS. A, 3-D echocardiography image. B and C, Pre-operative echocardiography images. D, Post-operative echocardiography image.

(Figure 4, C), HMB45 (–), A103 (–), TFE (–), myogenin (–), MyoD1 (–), CD34 (–), TLE-1 (–), CD99 (–), β -catenin (nucleus–), S-100 (–), EMA (–), and Ki-67 (MIB-1). To the best of our knowledge, this is one of the

only reports of an extremely rare mesenchymal tumor in the heart.² Surgical resection of the tumor is indicated if the patients are symptomatic or if other secondary complications have developed. Magnetic resonance imaging plays

VIDEO 1. 3-D intraoperative transesophageal echocardiography shows the intracardiac tumor. Video available at: [http://www.jtcvsonline.org/article/S0022-5223\(17\)31970-0/fulltext](http://www.jtcvsonline.org/article/S0022-5223(17)31970-0/fulltext).

VIDEO 2. Intraoperative transesophageal echocardiography showed the tumor in the right ventricle. Video available at: [http://www.jtcvsonline.org/article/S0022-5223\(17\)31970-0/fulltext](http://www.jtcvsonline.org/article/S0022-5223(17)31970-0/fulltext).

VIDEO 3. Different views of the intraoperative transesophageal echocardiography of the tumor. Video available at: [http://www.jtcvsonline.org/article/S0022-5223\(17\)31970-0/fulltext](http://www.jtcvsonline.org/article/S0022-5223(17)31970-0/fulltext).

FIGURE 3. A, Intraoperative image. B and C, Gross images of the tumor.

VIDEO 4. Postsurgical transesophageal echocardiography shows no residual tumor. Video available at: [http://www.jtcvsonline.org/article/S0022-5223\(17\)31970-0/fulltext](http://www.jtcvsonline.org/article/S0022-5223(17)31970-0/fulltext).

FIGURE 4. A, H&E staining images of the tumor. B, Immunohistochemical staining image of the tumor for detecting SMA. C, Immunohistochemical staining image of the tumor for detecting MSA.

an important role in the diagnosis and management of patients with these rare types of cardiac tumors. In summary, we present a case that provides valuable information to cardiac surgeons to assist their management of primary cardiac tumors.

References

1. Bradshaw SH, Hendry P, Boodhwani M, Dennie C, Veinot JP. Left ventricular mesenchymal hamartoma, a new hamartoma of the heart. *Cardiovasc Pathol*. 2011;20:307-14.
2. Jarmoszewicz K, Rogowski J, Lepska L. Rare type of cardiac tumor in a healthy young woman. *J Thorac Cardiovasc Surg*. 2014;147:1109-10.